



Helpful Tips for Today's Session

- **To Ask a Question** – Type your question in the Q&A panel on the right side of your screen. If the panel is hidden, click on the control panel at the top to open Q&A.
- **To Answer a Poll Question** – Choices will be in the poll panel on the right side of the screen. If the panel is hidden, click on the control panel at the top to open the poll.

Lead and Copper Rule 101

Requirements Before an Action Level Exceedance

Lead and Copper Rule 101

Requirements Before an Action Level Exceedance

First in Three-Part Webinar Series





Poll Question 1

How many people are in the room?

- a) 1
- b) 2
- c) 3
- d) 4
- e) Greater than 5



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How the Presentation is Organized

- Introduction
- 1991 Lead and Copper Rule and Revisions
- Health Effects and Sources
- Overview of the Lead and Copper Rule
- Lead and Copper Tap Monitoring Requirement
- 90th Percentile Calculation
- Requirements to Inform the Public
- Water Quality Parameter Monitoring
- Requirements related to Long-Term Treatment Changes and New Source Additions



















Introduction

Terminology for Primacy Agency

- State means Primacy Agency
- 40 CFR § 141.2 definition for State
- Possible Primacy Agencies
 - State
 - Tribal government
 - EPA region



Acronyms

	AL:	Action Level
	ALE:	Action Level Exceedance
	CCT:	Corrosion Control Treatment
	CWS:	Community Water System
	LCR:	Lead and Copper Rule
	LCR MR:	Lead and Copper Minor Revisions
	LCR STR:	Lead and Copper Short-Term Revisions and Clarifications
	LSLR:	Lead Service Line Replacement
	MCL:	Maximum Contaminant Level
	MCLG:	Maximum Contaminant Level Goal
	M/R	Monitoring and Reporting (Violation)
	NTNCWS:	Non-transient Non-community Water System
	OWQP:	Optimal Water Quality Parameters
	PWS:	Public Water System
	SOWT:	Source Water Treatment
	WQP:	Water Quality Parameter



Regulatory Authority for Controlling Lead Levels in Drinking Water

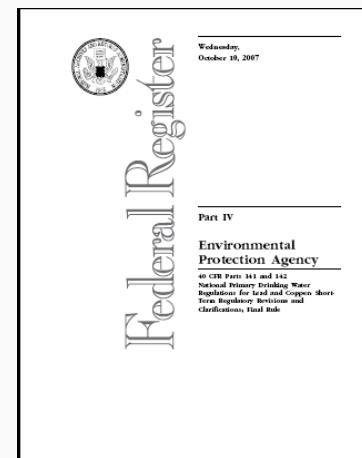
- **The Lead Ban(1986):** A requirement that only lead-free materials be used in new plumbing and in plumbing repairs.
- **The Lead Contamination Control Act (LCCA) (1988):** The LCCA further amended the SDWA. The LCCA is aimed at the identification and reduction of lead in drinking water at schools and child care facilities. *However*, implementation and enforcement of the LCCA has been at each state's discretion. School monitoring and compliance has varied widely.
 - **There is NO federal law requiring schools or child care centers to test drinking water for lead**
- **The Lead and Copper Rule (1991):** A regulation by EPA to minimize the corrosivity and amount of lead and copper in water supplied by public water systems.



Lead and Copper Rule (LCR)

Background

- National Primary Drinking Water Regulation (NPDWR) promulgated **June 7, 1991**-Minor Revisions **Jan 12, 2000** and Short Term Revisions **October 7, 2007**
 - Addresses corrosion of lead and copper in drinking water
 - primarily from service lines and household plumbing
 - Maximum Contaminant Level Goals (MCLG)
 - Lead – 0 µg/L
 - Copper – 1.3 mg/L
 - Requires a treatment technique (optimized corrosion control) rather than a Maximum Contaminant Level (MCL)
 - Tap sampling results (the 90th percentile) are compared to an action level
 - Lead - 15 µg/L
 - Copper - 1.3 mg/L





Lead and Copper Rule (LCR)

Background Continued

- Corrosion control is chemical treatment that is designed to reduce the corrosivity of water. The major optimal corrosion control treatment (OCCT) techniques are:
 - ✓ pH and/or Alkalinity Adjustment.
 - ✓ Inhibitor Addition (phosphate or silicate based inhibitors)
- For small/med systems, the action level for lead is a trigger for optimal corrosion control as part of the treatment technique. It is based on treatment feasibility; NOT on a health threshold
- Large systems are required to optimize corrosion control regardless of their 90th percentile lead concentration, unless the difference between the 90th percentile and the highest source water lead concentration is <0.005 mg/L (PQL).



Lead and Copper Minor Revisions (2000)

Scope of Revisions

Reduced the burdens for systems, improved implementation, and provided some clarifications to 1991 rule.





The changes fell into seven broad categories

- Monitoring Requirements
- Public Education Requirements
- Special Primacy Considerations
- Demonstration of Optimal Corrosion Control
- Lead Service Line Replacement Requirements
- Analytical Methods
- Reporting and Record Keeping Requirements



Lead and Copper Short-Term Revisions (2007)

Scope of Revisions

-  Addresses implementation issues with existing rule:
 - ✓ Monitoring revisions (sample number, timing clarifications).
 - ✓ Additional requirements for providing public information.
 - ✓ Advanced notification of treatment changes and source additions.
 - ✓ Reevaluation of “tested-out” lead service lines.
-  Targeted changes based on input from National LCR Review.
-  Key elements of treatment technique requirements are unchanged.
-  Long-term revision process is currently under way.



Health Effects of Lead in Children

Young children and infants tend to absorb more lead than the average adult.

The health effects of lead in children include:

- Impaired mental development
- IQ deficits
- Shorter attention spans
- Low birth weight



EPA set the MCLG at zero.



Health Effects of Copper

- Stomach and intestinal distress
- Complication of Wilson's Disease
- Chronic Exposure can cause liver disease in genetically predisposed individuals
- EPA set the MCLG at 1.3 mg/L

Lead and Copper Rule

Overview

Lead and Copper Rule


Overview

 Three system size categories.

Large: > 50,000 people

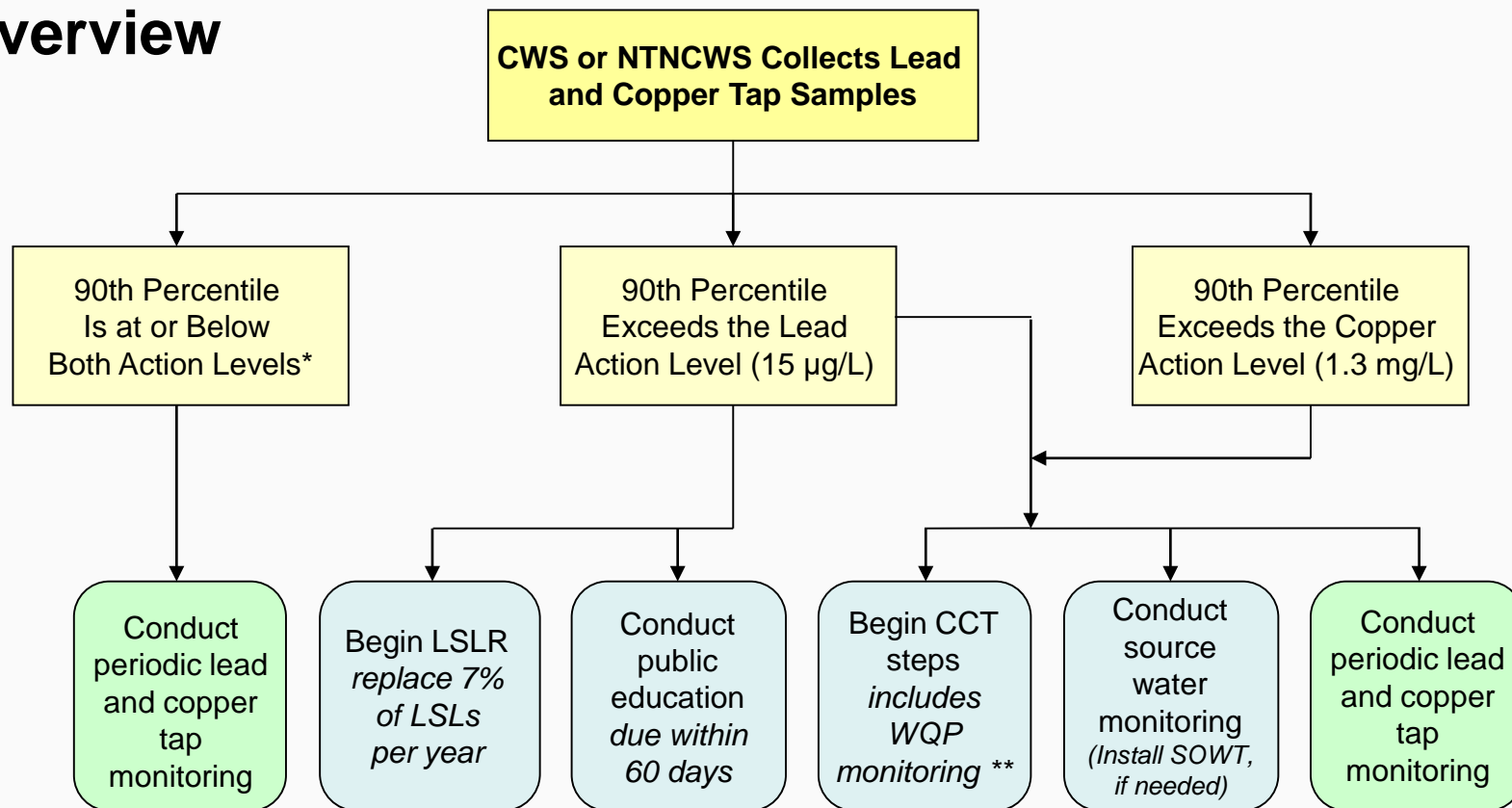
Medium: 3,301 to 50,000 people

Small: 3,300 or fewer people

 System size determines the sample number and applicability/timing of some requirements.



Lead and Copper Rule Overview



* Includes systems serving $\leq 50,000$ people and (b)(3) systems

** Includes non-(b)(3) systems serving $> 50,000$ people, irrespective of their 90th percentile levels; (b)(2) systems must collect WQPs.



Review of Lead and Copper Tap Monitoring Requirements



Review of Monitoring Requirements

Site Selection - CWS

Three sampling site tiers: Tier 1, Tier 2 and Tier 3:

- Tier 1 sample sites are considered high risk sites.
- Tier 1 sampling pool consists of single* family structures that:
 - ✓ Contain copper pipes with lead solder installed after 1982 (but before State's lead ban) or;
 - ✓ Contain lead pipes; and/or,
 - ✓ Are served by a lead service line.
(collect 50% of samples from LSLs)



*** May include multiple-family residences in sampling pool when they comprise at least 20 percent of structures served.**



Review of Monitoring Requirements

Site Selection - CWS

 Tier 2 sampling pool consists of buildings including multiple family residences that:

- ✓ Contain copper pipes with lead solder installed after 1982 (but before State's lead ban); or
- ✓ Contain lead pipes ;and/or,
- ✓ Are served by a lead service line.



 Tier 3 sampling pool consists of single family structures that:

- ✓ Contain copper pipes with lead solder installed before 1983.

Use representative sites throughout distribution system if insufficient number of tiered sampling sites are available.



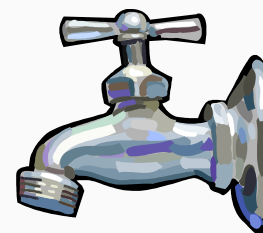
Review of Monitoring Requirements

Site Selection - NTNCWS

Two sampling site tiers: Tier 1 and Tier 2.

■ Tier 1 sampling pool consists of sample sites that:

- ✓ Contain copper pipes with lead solder installed after 1982 (but before State's lead ban); or,
- ✓ Contain lead pipes; and/or,
- ✓ Are served by lead service line.



■ Tier 2 sampling pool consists of sample sites that:

- ✓ Contain copper pipes with lead solder installed before 1983.

Use representative sites throughout distribution system if insufficient number of tiered sampling sites are available.

Review of Monitoring Requirements

Sample Collection Method



- ✓ First-draw
- ✓ 6-hour standing time
- ✓ One-liter volume



- ✓ System or residents can collect
- ✓ Samples are taken from kitchen/bathroom taps

Review of Monitoring Requirements

Sample Collection Method Continued

- **Water Softeners:**
 - Don't collect samples from taps at homes with water softeners or other point-of-use or point-of-entry devices for inorganic removal.
 - If the only available sites have these devices, collect samples from the sites with the highest tier rating (Tier 1, followed by Tier 2 and then Tier 3).



Lead and Copper Tap Monitoring

Management of Aerators during Sample Collection

- EPA recommends homeowners regularly clean their aerators to remove the particulate matter.
- EPA also states that public water systems should NOT recommend that customers remove or clean aerators prior to or during sample collection for lead and copper.*
- If customers are only encouraged to remove and clean the aerators prior to sampling for lead, then the water system could fail to identify the typical contribution of lead from that tap.
- If a homeowner's result (*with aerator*) is above the action level, the water system may want to take a second sample (*without aerator or a clean aerator*) to determine whether particulate matter is the source of lead.
- In the above example the results of both samples would be included in the set of samples used to determine the 90th percentile (*i.e., the first sample could not be invalidated based on the presence of lead-bearing matter in the aerator*).



Lead and Copper Tap Monitoring

Clarifications of Requirements for Collecting Samples and Calculating Compliance (2004 memo)

- EPA addressed 7 aspects of the requirements for collecting samples and calculating compliance:
 - ☑ All sample results from a system's sampling pool during the monitoring period must be included in the 90th percentile calculation (*even if this includes more samples than the required minimum number needed for compliance*).
 - ☑ Customer-requested samples should not be used to calculate the 90th percentile, except in cases where the system is able to determine that the site selection criteria for compliance sampling are satisfied.
 - ☑ Only samples collected during the compliance monitoring period may be included in the 90th percentile calculation.*



Lead and Copper Tap Monitoring

Clarifications of Requirements for Collecting Samples and Calculating Compliance Continued (2004 memo)

- States must calculate the 90th percentile even if the minimum number of samples are not collected.
- A proper sample is defined as a first draw one liter sample that is taken from an interior tap used for consumption (i.e. kitchen or bathroom sink) after the water has been standing in plumbing for at least six hours.
- To avoid sample collection problems, the system may wish to do the sampling itself or review the sample collection information before sending it to the lab.
- A State can invalidate a sample for one of the following reasons:
 - ☒ Improper sample analysis
 - ☒ Site selection criteria not met
 - ☒ Sample container was damaged in transit
 - ☒ Sample subjected to tampering

Lead and Copper Tap Monitoring

Sample Collection Continued

- A sample cannot be invalidated:
 - ✓ Alleged homeowner error in sample collection
 - ✓ Excessive stagnation periods



After a sample is analyzed, a system cannot challenge the results.

Lead and Copper Tap Monitoring

Sample Collection Continued

- To request sample invalidation, system must provide:
 - ✓ All sample results to the State
 - ✓ Documentation for samples to be invalidated
- State's decision to invalidate sample:
 - ✓ Must be in writing
 - ✓ Cannot be on the grounds that a follow-up sample result is higher or lower than that of the original sample
- Invalidated samples are not counted for compliance.

Note: If a State invalidates a sample and the system must collect a replacement sample to have a sufficient number of samples to calculate compliance, the system must collect a replacement sample within 20 days (even if sample collection is after the end of the monitoring period) and the results must be included in the 90th percentile.

Lead and Copper Tap Monitoring

Sample Collection Continued

- Replacement samples must be taken:
 - ✓ If needed to meet minimum sampling requirements
 - ✓ As soon as possible but no later than 20 days after invalidation or by end of monitoring period (whichever is later)
 - ✓ From the same locations as the invalidated samples, or if that is not possible, at locations other than those already used for sampling during the monitoring period
- Replacement samples cannot be used to satisfy requirements for a subsequent monitoring period.

Monitoring Requirements

Minimum Number of Tap Samples

System Population	Number of Sampling Sites <i>(on Routine Monitoring)</i>	Number of Sampling Sites <i>(on Reduced Monitoring)</i>
>100,000	100	50
10,001 to 100,00	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
≤100	5	5



Monitoring Requirements

Minimum Number of Samples Required

■ Systems with fewer than 5 taps for human consumption can do one of two things:

1. Collect multiple samples from same location on different days to meet 5 sample minimum.

Or

2. States may allow 1 sample per tap for human consumption if < 5 such taps.

Note: If < 5 samples are taken, highest result is 90th percentile level.

Monitoring Requirements

Monitoring Period

Standard monitoring:

- Conducted at 6-month intervals of January-June or July-December
- Applies unless the system qualifies for reduced monitoring
- Not required during some corrosion control treatment steps

STANDARD MONITORING (Conducted at 6-month intervals)	
System Population	Minimum Number of Sampling Sites
>100,000	100
10,001 to 100,00	60
3,301 to 10,000	40
501 to 3,300	20
101 to 500	10
≤100	5

Monitoring Requirements

Monitoring Period

Reduced Monitoring:

- Conducted at a reduced frequency and a reduced number of sample sites
- Conducted during a 4-month period of June-September, unless State approves an alternate period

REDUCED MONITORING (Conducted at a Reduced Frequency)	
System Population	Minimum Number of Sampling Sites
>100,000	50
10,001 to 100,00	30
3,301 to 10,000	20
501 to 3,300	10
101 to 500	5
≤100*	5
*Same as standard monitoring.	

Monitoring Requirements

Monitoring Period

Reduced Monitoring:

- Systems can go from standard monitoring to annual monitoring if:
 - System serving $\leq 50,000$ people the 90th percentile meets or is **below** lead and copper action levels (ALs) for 2 consecutive 6-month monitoring periods; or
 - Any system that meets optimal WQPs (OWQPs) and with a 90th percentile that is at or below the **lead** AL for 2 consecutive 6-month monitoring periods.
- Annual monitoring begins in calendar year (CY) after criteria are met

If 2 nd 6-month is:	Annual Monitoring Period
January – June	June 1 – Sept 30 of next CY
July - December	

Monitoring Requirements

Monitoring period

***Two consecutive
6-months counts
as 1st year.**

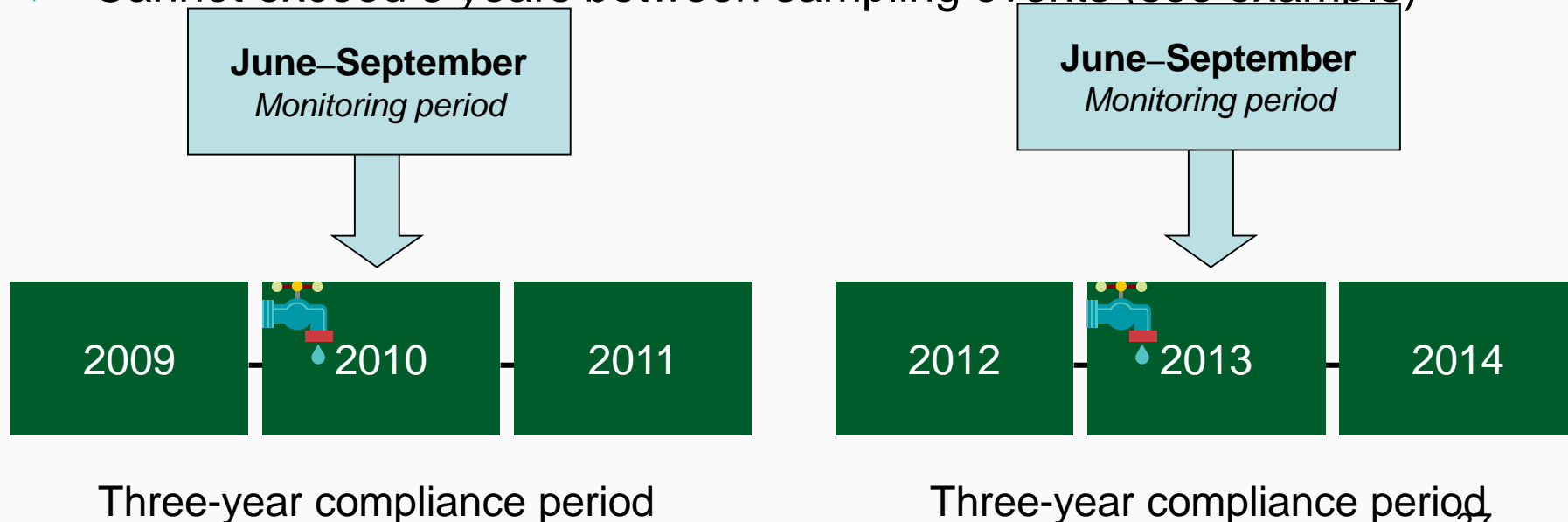
- Systems can go from annual monitoring to triennial reduced monitoring if:
 - System serving $\leq 50,000$ people the 90th percentile meets or is below **both** lead and copper action levels (ALs) for 3 consecutive years of annual monitoring*; or
 - Any system that meets OWQP specifications and the 90th percentile meets or is below the **lead** AL for 3 consecutive years of annual monitoring; or
 - Any system with 90th percentile levels ≤ 0.005 mg/L for lead and ≤ 0.65 mg/L for copper for 2 consecutive 6-month monitoring periods
- Begins in calendar year (CY) after meet criteria



Monitoring Requirements

Three-Year Compliance Period

- Triennial monitoring must occur once during every 3-year compliance period
- Monitoring period is June – Sept. of same calendar year
- Cannot exceed 3 years between sampling events (see example)



Monitoring Requirements

Monitoring Waivers

- 9-Year Monitoring Criteria (Waiver)
 - System serves $\leq 3,300$ people
 - System's distribution system, service lines, and plumbing materials meet certain criteria that indicate negligible risk from lead and/or copper exposure (i.e., are lead- or copper-free)
 - 90th percentile levels are $\leq 0.005\text{mg/L}$ for lead and $\leq 0.65\text{mg/L}$ for copper

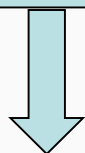


Review of Monitoring Requirements Continued

Nine-Year Compliance Period

- Nine-year monitoring must occur once every nine-year compliance period
- Monitoring period is June through September of same calendar year
- Cannot exceed nine years between sampling events (see example)

June–September
Monitoring period



2001 2002 2003 2004 2005 2006 2007 2008 2009

1st 9-year compliance period

June–September
Monitoring period



2010 2011 2012 2013 2014 2015 2016 2017 2018

2nd 9-year compliance period

Review of Monitoring Requirements

How a System Returns to Standard from Reduced Monitoring

- Return to Standard Monitoring if System serves:
 - $\leq 50,000$ people and exceeds either AL during any monitoring period;
 - Any system which does not meet its OWQP specifications; set by the State for more than 9-days in a six-month period (i.e., excursion); or
 - Any system which meets its OWQP specifications but exceeds the lead AL
- Begins in January 1 of CY following monitoring period in which AL exceedance or excursion occurred




Review of 90th Percentile Calculations



90th Percentile Calculations


More than 5 Samples

 **Step 1:** Place lead or copper results in ascending order.

 **Step 2:** Assign each sample a number, 1 for lowest value.

 **Step 3:** Multiply the total number of samples by 0.9.

Example: 20 samples x 0.9 = 18th sample.*

 **Step 4:** Compare 90th percentile level to AL (in above example, 18th sample).



*** When more than minimum number of samples are collected, may need rounding or interpolation to determine 90th percentile sample.**



90th Percentile Calculations

More than 5 Samples: Example Question

Assume 10 samples are collected with lead results as follows:

Site A: 0.005 mg/L

Site B: 0.015 mg/L

Site C: 0.005 mg/L

Site D: 0.014 mg/L

Site E: 0.014 mg/L

Site F: 0.005 mg/L

Site G: 0.040 mg/L

Site H: 0.014 mg/L

Site I: 0.014 mg/L

Site J: 0.005 mg/L

What is the 90th Percentile Value?



90th Percentile Calculations

More than 5 Samples: Example Answer

Step 1: Order results from lowest to highest:

- | | |
|------------------|-------------------|
| 1. Site A: 0.005 | 6. Site E: 0.014 |
| 2. Site C: 0.005 | 7. Site H: 0.014 |
| 3. Site F: 0.005 | 8. Site I: 0.014 |
| 4. Site J: 0.005 | 9. Site B: 0.015 |
| 5. Site D: 0.014 | 10. Site G: 0.040 |



Step 2: Multiply number of samples by 0.9 to determine which represents 90th percentile level

$$10 \times 0.9 = 9\text{th sample (or } 0.015 \text{ mg/L)}$$

Step 3: Compare to lead action level → No Exceedance⁴⁴

90th Percentile Calculations

Use of Rounding or Interpolation

- Use rounding or interpolation if:
 - You have collected more than 5 samples, and
 - The number of samples $\times 0.9$ is not a whole number
- **EXAMPLE:**
 - System has 12 LCR compliance samples
 - $12 \times 0.9 = 10.8$, which is not a whole number
 - 10th highest sample lead result = 0.014 mg/L
 - 11th highest sample lead result = 0.020 mg/L
- **QUESTION:**
 - What is the 90th percentile?

90th Percentile Calculations

Use of Rounding

Step 1: Round to the nearest whole number

- E.g., 10.8th sample ranking would round to the 11th sample

Step 2: Use the sample result that corresponds to the rounded sample ranking from Step 1 as the 90th percentile

- E.g., 11th sample result = 0.020 mg/L

Step 3: Compare the sample result from Step 3 to the action level of 0.015 mg/L

- E.g., 0.020 mg/L is greater than 0.015 mg/L ➡ Action Level Exceedance

90th Percentile Calculations

Use of Interpolation

Step 1: Subtract the two sample results between which the 90th percentile falls

- E.g., 90th percentile = 10.8. Subtract 11th and 10th results.
 $0.020 \text{ mg/L (11}^{\text{th}} \text{ sample)} - 0.014 \text{ mg/L (10}^{\text{th}} \text{ sample)} = 0.006 \text{ mg/L}$


Step 2: Subtract the 90th percentile and lower of the two numbers between which the 90th percentile falls (falls between 11 and 10)

- E.g., $10.8 \text{ (90}^{\text{th}} \text{ percentile)} - 10 = 0.8$

Step 3: Multiply the differences obtained in Steps 1 and 2

- E.g., $0.006 \text{ mg/L (from Step 1)} \times 0.8 \text{ (from Step 2)} = 0.005 \text{ mg/L (rounded)}$




Step 4: Add Step 3 result to the lower of the two sample results

- E.g., $0.005 \text{ mg/L (from Step 3)} + 0.014 \text{ mg/L (10}^{\text{th}} \text{ sample result)} = 0.019 \text{ mg/L}$
  Action Level Exceedance



90th Percentile Calculations

5 Samples

-  **Step 1:** Place results in ascending order
-  **Step 2:** Average 4th and 5th highest sample results
-  **Step 3:** Compare 90th percentile level to action level





90th Percentile Calculations

5 Samples: Example Question

Assume 5 samples are collected with lead results as follows:

Site A: 0.009 mg/L

Site B: 0.011 mg/L

Site C: 0.020 mg/L

Site D: 0.009 mg/L

Site E: 0.010 mg/L

What is the 90th Percentile Value?



90th Percentile Calculations

5 Samples: Example Answer

Step 1: Order results from lowest to highest:

1. Site A: 0.009 mg/L
2. Site D: 0.009 mg/L
3. Site E: 0.010 mg/L ←
4. Site B: 0.011 mg/L
5. Site C: 0.020 mg/L

Step 2: Average 4th & 5th samples highest samples to get 90th percentile value = 0.016 mg/L




$$\frac{0.011 \text{ mg/L} + 0.020 \text{ mg/L}}{2} = 0.0155 \text{ mg/L}$$

Step 3: Compare average to lead action level → Exceedance 50



90th Percentile Calculations

Fewer than 5 Samples

-  Procedure has changed under STR.
-  Some systems may collect < five samples.
-  Sample with **highest result** is 90th percentile level.



Assume 3 lead samples: 0.020 mg/L, 0.008 mg/L, and 0.005 mg/L.
90th percentile = 0.020 mg/L

-  No M/R violation.





Requirements to Inform the Public



Lead and Copper Rule

Requirements to Inform the Public before an ALE

-  Consumer Notification of Lead Tap Water Results.
-  Consumer Confidence Report Lead Informational Statement.





Requirements to Inform the Public

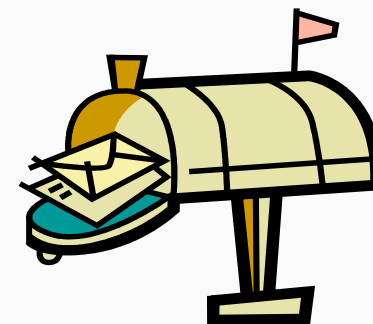
Lead Consumer Notice

Systems Affected

- All CWSs and NTNCWSs

Rule Requirements

- Provide notice of lead tap water monitoring results
- Provide irrespective of whether sample exceeds lead AL
- Provide to all served by sampling site -- not just ones with water bills
- Provide as soon as practical but within 30 days after receives results
- Provide by mail or other State-approved methods





Requirements to Inform the Public

Lead Consumer Notice

Notice must include:

- ✓ Results of lead tap water monitoring
- ✓ Explanation of lead health effects
- ✓ Steps consumers can take to reduce exposure
- ✓ Facility contact information
- ✓ MCLG and AL for lead and their definitions*



** Must use CCR Rule language in
§ 141.13(c).*



Requirements to Inform the Public

Lead Consumer Notice

Within 3 months after the monitoring period ends, the system sends the State:

- Sample of lead consumer notice, and
- Certification that notification meets delivery requirements.
- Sample certification available in revised M/R and State implementation guidances.*



* <http://www.epa.gov/safewater/lcrmr/compliancehelp.html>



Requirements to Inform the Public

Consumer Confidence Report (CCR) Requirement

Systems Affected

- ☒ All CWSs

Rule Revision

- ☒ All CCRs must include:
 - ✓ Sources of lead in drinking water.
 - ✓ Health effects from lead exposure.
 - ✓ Ways to reduce lead in drinking water.
 - ✓ Recommended flushing times.
 - ✓ Places to go for more information including lead testing.
- ☒ Required regardless of lead sample levels.



Requirements to Inform the Public

Consumer Confidence Report Requirement (CCR)

- Must include following mandatory language

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. [Name of Utility] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

- Or write own statement in consultation with State.



Water Quality Parameter Monitoring



Water Quality Parameter Monitoring

- Required for all large systems (systems serving more than 50,000 persons)
- Required for small/medium system which exceed the lead or copper action level
- Sample site locations
 - Representative locations (e.g., coliforms and disinfectant residual sites)
 - Entry point to the distribution system



Water Quality Parameter Monitoring

Purpose of WQP monitoring:

- To assist in determining water corrosivity
- To identify appropriate corrosion control treatment
- To determine whether corrosion control treatment is being properly maintained

WQP Monitoring - Parameters

Typical Water Quality Parameters	
pH ¹	Orthophosphate ²
Alkalinity	Silica ³
Calcium	Temperature ¹
Conductivity	
¹ Measured on-site. ² Applies when a phosphate-containing inhibitor is used. ³ Applies when a silicate-containing inhibitor is used.	

WQP Monitoring

Number of Samples

- Number of samples – two sets of samples per site and samples should be taken from taps that have been fully flushed

Standard Number of WQP “Tap” Sites and Samples		
System Size (No. of People Served)	No. of Sites (Standard)	No. of Samples (2 per site)
> 100,000	25	50
10,001 to 100,000	10	20
3,301 to 10,000	3	6
501 to 3,300	2	4
≤ 500	1	2

WQP Monitoring

- Large Systems: During the 2 consecutive 6-month monitoring periods immediately following corrosion control treatment (CCT) installation
- Medium and Small Systems: Only during the monitoring period(s) in which AL exceedance occurs following CCT installation
- Sample Sites
 - Entry Points: Changes to 1 sample every 2 weeks
 - Exception: Ground water systems may receive State approval to limit monitoring to entry point samples that are representative of water quality and treatment conditions throughout the system
 - Taps: 2 samples from each tap during monitoring period

WQP Monitoring

- The State will review the lead and copper tap monitoring and water quality parameter data that the system has collected prior to and after the installation of corrosion control treatment to set optimal water quality parameter (OWQP) minimums or ranges.
- OWQPs specify how CCT must be maintained

WQP Monitoring

After State Sets OWQPs

- Collect WQP tap samples every 6 months (2 samples at standard number of taps)
- Entry point every 2 weeks (at each entry point or representative sites)
- Required for:
 - Systems serving > 50,000
 - Medium and Small Systems during monitoring period(s) in which AL exceedance occurs, or if required by State



WQP Monitoring

After State Sets OWQPs

The WQP compliance period begin dates:

- After State sets OWQPs begins:
 - ✓ January 1 or July 1 for systems on standard monitoring.
 - ✓ June 1 for small/medium on reduced monitoring.*
- Annual monitoring begins during CY after end of 3rd consecutive 6-month period of meeting OWQPs.
- Triennial monitoring begins no later than 3 years after 3rd consecutive year of meeting OWQPs.

** 6-month OWQP compliance period will be June 1 – November 30.*

WQP Monitoring

- OWQP compliance is based on 6-month periods
- Cannot be outside OWQP ranges or below OWQP minimum for more than 9 days:
 - at a specific sampling point or combination of sampling points, or
 - for a specific WQP or combination of WQPs during a 6-month period
- The 9 days do not have to be consecutive days

Refer to, *How to Determine Compliance with Optimal Water Quality Parameters as Revised by the Lead and Copper Rule Minor Revisions.*

http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/upload/2001_6_7_lcrmr_guidance_lcmr_optimal_water_quality_compliance.pdf., February 2001

WQP Monitoring

Reduced Monitoring

- Every 6 months w/ Reduced Tap Samples
 - OWQP maintained for 2 consecutive 6-month periods
 - Continue with entry point sampling (every 2 weeks)
 - Reduce number of tap samples – applies to systems serving > 10,000

Number of WQP Tap Sample Sites (2 samples from each site)		
<u>System Size</u>	<u>Standard</u>	<u>Reduced</u>
> 100K	25	10
10,001 – 100K	10	7
3,301 – 10K	3	3
501 – 3,300	2	2
101 – 500	1	1

WQP Monitoring

Reduced Monitoring

- Annually

- OWQP maintained for 3 consecutive years
 - Continue with entry point sampling (every 2 weeks)
 - Reduce tap sample frequency to annually

- Triennial

- Annual OWQP maintained for 3 consecutive years;
or

Any PWS with 90th percentile levels $\leq 0.005\text{mg/L}$ for Pb and $\leq 0.65\text{mg/L}$ for Cu and maintains OWQP for 2 consecutive 6-month monitoring periods


- Continue with entry point monitoring (every 2 weeks)
- Reduce tap sample frequency to once every three years

Annual samples should be spread evenly throughout the year to capture seasonal variability.

WQP Monitoring

Return to Standard Monitoring from Reduced Monitoring

- If system fails to meet OWQP specification for more than 9 days in a 6-month compliance period:
 - Return to 6-month monitoring frequency
 - Systems serving > 10,000 must collect standard number of WQP taps
- Can re-qualify for reduced monitoring



Notification of Treatment Changes and Source Additions



Long-Term Treatment Changes and New Source Additions

Systems Affected

- Systems on reduced lead and copper tap monitoring

Rule Requirement

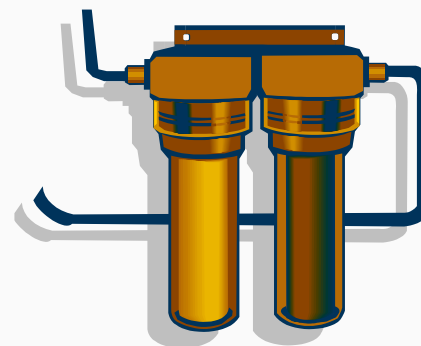
- Requires prior notification and approval of treatment change or source addition
- Limits notification of treatment changes to “long-term changes”
- Notification due as specified by State, or early as possible prior to change or addition




Long-Term Treatment Changes and New Source Additions

 Examples of long-term treatment changes:

- ✓ Switching secondary disinfectants
- ✓ Switching coagulants
- ✓ Switching corrosion inhibitor products
- ✓ Changing dosage of existing chemicals
- ✓ Installation of membrane filters, ozonation, enhanced coagulation/softening



 Does NOT include chemical dose fluctuations associated with daily raw water quality changes



Long-Term Treatment Changes and New Source Additions

 Examples of source water additions include:

- ✓ Switching source types
- ✓ Adding treated surface water to ground water only system
- ✓ Adding new well from different aquifer



 Seasonal or interannual source changes DO NOT require notification if:

- ✓ Covered by previous OCCT studies and sampling, and
- ✓ Covered within OCCT designation framework



Long-Term Treatment Changes and New Source Additions

Simultaneous Compliance Guidance Manual -- LT2 and Stage 2 DBP Rules

- Format differs from 1999 manual
- Treatment change chapters
- Improving or optimizing existing treatment
- Addition of new carbon or microbial removal technology
- Alternate disinfection strategies



Available at:

<http://www.epa.gov/ogwdw/disinfection/stage2/compliance.html>



Lead and Copper Rule

Resources

- EPA's lead and copper compliance help web site
<http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/compliancehelp.cfm>
- [Lead and Copper Rule: A Revised Quick Reference Guide \(PDF\)](#) (2 pp, 125K) EPA816-F-08-018 June 2008
- [Lead and Copper Rule: A Quick Reference Guide for Schools and Child Care Facilities that Are Regulated Under the Safe Drinking Water Act \(PDF\)](#) (5 pp, 546K)
- [Final Revised Guidance Manual for Selecting Lead and Copper Control Strategies \(PDF\)](#) (54 pp, 664K) EPA 816-R-03-001, March 2003
- [Simultaneous Compliance Guidance Manual for Stage 2 Rules \(PDF\)](#) (462 pp, 3MB) EPA 815-R-07-017 May 2007
- Lead and Copper Rule Guidance Manual, Volume II: Corrosion Control Treatment EPA 811-B-92-002, September 1992
- [Lead and Copper Rule \(LCR\) 2007 Short-Term Regulatory Revisions and Clarifications State Implementation Guidance \(PDF\)](#) (75 pp, 586K)
- [Implementing the Lead Public Education Provisions of the Lead and Copper Rule: A Guide for Community Water Systems \(PDF\)](#) (93 pp, 1MB)

Ask the Experts

Question & Answer Period



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Lead and Copper Rule 3-Part Webinar Series

- **Part 1:** Requirements Before an Action Level Exceedance
May 7th 2015, 1:30pm- 3:30pm EST **COMPLETED**
- **Part 2:** Requirements After an Action Level Exceedance
June 18th 2015, 1:30pm-3:30pm EST
- **Part 3:** Compliance Determination and Reporting Requirements
July 9th 2015, 1:30pm- 3:30pm EST

For more information visit the drinking water academy:

<http://water.epa.gov/learn/training/dwatrainig/calendar.cfm>

Or Email Victoria Banks

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